

**METHOD OF CONTROLLING GRAIN SIZE IN A POLYSILICON LAYER AND  
IN SEMICONDUCTOR DEVICES HAVING POLYSILICON STRUCTURES**

**ABSTRACT**

A method of modulating grain size in a polysilicon  
5 layer and devices fabricated with the method. The method  
comprises forming the layer of polysilicon on a substrate;  
and performing an ion implantation of a polysilicon grain  
size modulating species into the polysilicon layer such that  
an average resultant grain size of the implanted polysilicon  
10 layer after performing a pre-determined anneal is higher or  
lower than an average resultant grain size than would be  
obtained after performing the same pre-determined anneal on  
the polysilicon layer without a polysilicon grain size  
modulating species ion implant.